

Fred C. Hart Associates, Inc.

January 19, 1988

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Site Investigation and Compliance Branch
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
26 Federal Plaza
New York, NY 10278

ATTN: Nigel Robinson, Project Officer

Re: Work Plan for Ambient Air Sampling for Millington Site
Millington, NJ Cercla Order 50103

Dear Nigel:

After some consideration, National Gypsum has instructed HART to put together and implement, at EPA's request, an Ambient Air Sampling Data Collection task for the Millington Site Investigation Report. This letter transmits HART's proposed work plan for your review.

Ambient Air Monitoring Task - Millington Site.

In order to document ambient air conditions at the Millington site to satisfy the requirement of the National Contingency Plan, ambient air monitoring for asbestos will be performed. First, a meteorological station will be set up to document air flow conditions. Second, a series of air samples will be collected according to the outlined procedures. Third, the samples will be analyzed by NIOSH Method 7400 and TEM to determine airborne asbestos levels and particle mineralogy. Fourth, the data will be incorporated into the February 29, 1988 draft of the Remedial Investigation report for the Millington Site if ambient meteorologic conditions listed in the following plan are met. Specific work task components are listed below:

Subtask 1 - Meteorological Monitoring

A Meteorology Research, Inc. (MRI) Model 1071 meteorological monitoring station will be used to continuously monitor wind speed, wind direction, and ambient temperature during field investigation operations. This instrument is a sensitive but rugged model that is ideally suited to temporary field use. The sensors are activated mechanically and motion is transferred via internal linkages to the recorder. The data is recorded on pressure sensitive strip chart paper that moves at a rate of approximately one inch per hour. The instrument will be checked daily and the operator will mark the time and date on the strip chart and initial it.

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Wind direction is recorded instantaneously without any averages, while wind speed is recorded as wind run. The wind run recorded each hour is the hourly average wind speed, therefore, the recorded units are hourly average wind speed. The temperature sensor is a bimetallic spring which deflects a distance that is proportional to the temperature change. Ambient temperature is recorded in degrees Centigrade.

Although the Model 1071 is a rugged field unit, it is also an accurate and precise monitoring instrument. The attached table presents a summary of specifications regarding meteorological monitoring instrument accuracy recommended by the USEPA Prevention of Significant Deterioration (PSD) ambient monitoring guidelines. The PSD recommended specifications are compared to the Model 1071 specifications. In almost all cases, the Model 1071 accuracy is as good or better than the PSD guidelines.

Since the wind direction is recorded instantaneously, the data record yields fluctuations from which the standard deviation of the horizontal wind direction (horizontal wind sigma) can be derived. All parameters (wind speed, wind direction, temperature) will be reduced to hourly averages using electronic digitizing techniques by Envirodata Corp. in Chelmsford, Massachusetts. In addition, the wind direction fluctuations will be reduced to horizontal wind sigma, followed by conversion to Pasquill wind stability class, using the techniques developed by the Nuclear Regulatory Commission (NRC) for evaluating atmospheric dispersion of radioactive particle emissions from nuclear power plants. The procedures used by the NRC were developed over many years from atmospheric dispersion research pioneered originally by the Atomic Energy Commission (AEC). The hourly Pasquill stability class data can then be used, if necessary, with Gaussian dispersion estimating techniques to compute area-wide emission rates and/or air quality impacts at various points around the site.

The wind temperature monitoring station will be installed at the beginning of the field investigation and will operate continuously throughout the on-site study. The instrument will be installed at the highest point of open terrain on the site on a tripod that places the instrument at about six feet above ground level. The PSD guidelines recommend a minimum distance of five times the height of the nearest obstruction between that obstruction and the wind monitor. This recommendation should be attainable at the Millington Site. The height of six feet above ground level was chosen because any emission originating from the site will be emitted at ground level, essentially at ambient temperature, and without any thermal buoyancy. Therefore, the emissions will be predominantly transported and dispersed by winds that follow the ground contours, rather than upper level winds that may be quite different in character. The PSD guidelines suggest that for emission sources at low elevations the winds along the ground contours are more influential in pollutant dispersion and transport than the winds at higher levels.

Subtask 2 - Air Sampling

All air samples will be collected in accordance with NIOSH Method 7400 (copy attached).

The monitors will be distributed around the site as follows. One monitor will be placed on-site near exposed asbestos. Two monitors will be placed in a downwind direction from the exposed asbestos, preferably at the site boundary. One monitor will be placed upwind of the exposed asbestos. If wind direction is unclear, monitors will be placed approximately equidistant around the site. A fifth monitor will serve as a duplicate sampler, and one blank will also be collected.

Three separate sampling events are recommended following a dry period. For the purposes of this study a dry period is defined as five consecutive days without precipitation or frozen snow or water on the surface of the site which could cap any free asbestos. Three separate sampling events will consist of approximately 8 hour shifts and may be conducted over three consecutive days if weather conditions permit. No surface disturbance activities will be performed during the sampling events.

Gilian HFS 513 air pumps fitted with 25mm cellulose ester membrane filters will be used for the monitors. The airflow rate on each pump is variable up to 4 to 5 liters per minute. One to 4 liters per minute will be used on each pump depending on dust conditions on the day of sampling. Pumps have automatic flow controllers and each pump will be calibrated prior to each sampling event with a precision rotameter with a filter cassette in line with the sampling pump and calibration rotameter.

Task 3 - Asbestos Analysis

NIOSH Method 7400 will be used to provide asbestos fiber counts from all samples collected in Subtask 2. In addition, some samples may also be collected and retained for possible future analyses by Transmission Electron Microscopy (TEM) to determine the mineralogy of the asbestos fibers.

Subtask 4

Ambient air conditions will be reported for the Millington Site based on this survey. If available, the results will be reported in the February 29, 1988 draft of the Millington Site Remedial Investigation Report and will bring the report into compliance with the NCP. The results will also be added to the data base for the endangerment assessment which will also be resubmitted at that time.

HART has considered EPA's comments in the development of this work plan. We await your quick response to the ambient air sampling plan so we may collect and interpret data in our final submission on February 29, 1988. Please note that the acquisition of field data is dependent on the occurrence of requisite meteorologic conditions listed in the above ambient air sampling plan and data will be included in the final submission only if available at that time.

If you have any questions, please give me or Francie Barker a call as soon as possible.

Sincerely,

FRED C. HART ASSOCIATES, INC.


Thomas J. Morahan
Associate

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